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|-------------------------------|------------------------|---------------------|--|
| Notice of Allowability | Application No. | Applicant(s) | |
| | 09/995,695 | WAKAYAMA ET AL. | |
| | Examiner | Art Unit | |
| | TUAN A. PHAM | 2618 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 02/08/2006.
2. The allowed claim(s) is/are 1-6 and 9-41.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 02/08/2006
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

DETAILED ACTION

Drawings

1. The drawings were received on 02/08/2006. These drawings are replaced with the previous drawing was filed on 11/29/2001 has been considered by Examiner and made of record in the application file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 02/08/2006 has been considered by Examiner and made of record in the application file.

REASONS FOR ALLOWANCE

3. Claims 1-6, and 9-41 are allowed over the prior art of record.

4. The following is an examiner's statement of reasons for allowance:

The applicant's Remarks, filed on 02/08/2006, have been carefully reviewed. Consequently, reasons for allowance of claims 1-6, and 9-41 are set forth as the following.

Regarding claims 1, 29, and 37, the prior art made of record fails to clearly teach or fairly suggest, the logical consequent steps of a method and an integrated tuner comprising a local oscillator generation circuit, differential direct conversion mixer, a differential tunable low pass filter, and a LO correction circuits coupled between the LO generation circuit and the differential direct conversion mixer, that is configured to adjust an amplitude level of said differential LO oscillator signal to improve performance

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of the differential direct conversion mixer, the LO correction circuit including a variable amplifier that variably amplifies the differential local oscillator signal according to a control signal; and a level detect circuit connected to the output of the variable amplifier, that generates the control signal based on an output level of the variable amplifier, in combination with other limitations, as specified in the independent claims 1, 29, and 37, and further limitations of their respective dependent claims 1-5, 9-26, 30-36, and 38-41.

Regarding claim 6, the prior art made of record fails to clearly teach or fairly suggest, the feature of an integrated tuner comprising a local oscillator generation circuit, differential direct conversion mixer, a differential tunable low pass filter, plurality of polyphase circuits that correspond to the plurality of VCOs, and wherein the plurality of VCOs are connected to the plurality of the polyphase circuits by a plurality of amplifiers, wherein a VCO is selected by enabling one or more of the amplifiers that correspond to the selected VCO, and disabling more one or more amplifiers that do not correspond to the selected VCO, in combination with other limitations, as specified in the independent claim 6.

Regarding claim 27, the prior art made of record fails to clearly teach or fairly suggest, the feature of an integrated tuner comprising a local oscillator generation circuit, differential direct conversion mixer, a differential tunable low pass filter, a DC servo circuit, and wherein the DC servo circuit includes a first transconductance amplifier connected to an output of the second base band amplifier; a low pass filter connected to an output of the first transconductance amplifier; a second transconductance amplifier connected to an output of the low pass filter, an output of

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the second transconductance amplifier connected 180 degrees out-of-phase with an output of a third transconductnnce amplifier, the third transconductnnce amplifier part of the first base band amplifier, in combination with other limitations, as specified in the independent claim 27, and further limitations of their respective dependent claim 28.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Pham whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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April 9, 2006
Examiner

Tuan Pham



Matthew Anderson
SPE 2618